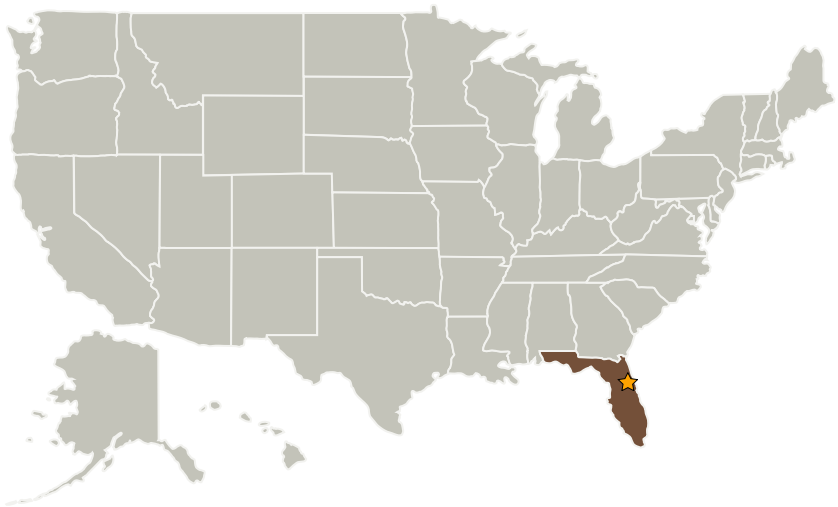
Very High Temperature Sound Absorption Coating, Phase II

Completed Technology Project (2005 - 2007)

Project Introduction

Phase I demonstrated experimentally a very high temperature acoustically absorbing coating for ducted acoustics applications. High temperature survivability at 3500 deg F was demonstrated in the MSFC Plasma Jet Facility. Normal incidence acoustic absorption coefficient of 25 % was demonstrated in a standing wave test facility. Phase I work confirmed the possibility of production of acoustic coatings for application in ducted flows near the exhaust of a large rocket engine. The screening process for Phase I was unique in its emphasis on the practical development of a deliverable coating, as opposed to untested theoretical work or screening at unrealistic environmental conditions. In addition, work done late in Phase I produced a coating with an absorption coefficient of 47 % which has yet to be screened for high temperature survivability. Phase two has one objective and one deliverable: To produce and experimentally validate a fully working high temperature acoustical absorption duct lining material. Production involves optimizing the material through iterative reformulation, experimental validation involves acoustic and survival testing at conditions (specifically temperatures and sound intensities) relevant to the use environment. Additionally finite element modeling will be used to validate/refine the data collection apparatus as no such facility or testing has been done previously.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Mabels Prototyping and Coffeeshop	Supporting Organization	Industry	Treasure Island, Florida

Primary U.S. Work Locations
Florida

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.5 Flight and Ground Testing Methodologies